Space Weather Forecast

Issued on Friday, 14 January 2022 at 12:31 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor Storm intervals likely from day 2 (15th).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Moderate in the last 24 hours. A moderate class flare was observed around 14/0200 UTC from just over the northeastern limb. There are a number of sunspot regions on the Earth-facing side. These are all generally simple and inactive. No Earth-directed coronal mass ejections (CMEs) have been observed

Solar Wind / Geomagnetic Activity: Solar winds are currently Low (350 km/s). The total magnetic field strength carried by the wind was weak to moderate, with no notable strength in the important north-south direction. Geomagnetic activity remained Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low or Moderate, and further flares at Common or Moderate class are anticipated to continue from the new region appearing across the northeast limb.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Solar winds are expected to remain Low until the arrival of the fast winds sometime in the next 24 hours most likely tomorrow (15th). Quiet geomagnetic activity is expected until this arrival, becoming Active to Minor Storm as it occurs, with a slight chance of Moderate Storms. Activity then becoming Quiet to Unsettled for days 3 and 4 (16th and 17th), with Active intervals and slight chance of Minor Storms for day 3 (16th).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	60	40	10
Strong	G3	No	1	5	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	30	30
Very Active	R3 to R5 X	No	5	10	5	3

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	2
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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